Re-evaluation Note REV2011-01

Discontinuation of Endosulfan

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Publications
Pest Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6604-E2
Ottawa, Ontario
K1A 0K9

Internet: pmra.publications@hc-sc.gc.ca
healthcanada.gc.ca/pmra
Facsimile: 613-736-3758
Information Service:
1-800-267-6315 or 613-736-3799
pmra.infoserv@hc-sc.gc.ca

Canada

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Summary

This document describes the terms of the phase-out of endosulfan insecticide from now until December 31, 2016, when the registrations of all endosulfan pesticide products in Canada will expire. Use will be limited to those crops for which growers need time to develop alternative pest control tools. Applicators must also observe new measures to protect the health of workers and aquatic environments. It is the goal of registrants and the Pest Management Regulatory Agency (PMRA) to ensure that endosulfan supplies are exhausted through use by the end of 2016.

1. Background

Endosulfan is an organochlorine insecticide and acaracide used to control a broad range of insect and arthropod pests on a wide variety of food, feed and ornamental crops. The PMRA conducted a preliminary re-evaluation of endosulfan (REV2007-13) and required specific interim risk mitigation measures (REV2009-09). In spring 2010, the PMRA concluded that use could no longer be supported and registrants are phasing-out all uses of endosulfan both in Canada and elsewhere. In REV2010-16, the PMRA requested use-related information to consider in planning the phase-out schedule. Comments received in response to REV2010-16 and to previous consultations helped identify which uses require a longer term phase out to allow for development of alternative pest control tools.

2. Discontinuation of Endosulfan Registrations

Makhteshim-Agan of North America and the PMRA have agreed on a schedule of deadlines, conditions and administrative actions to further protect workers and aquatic environments and reduce usage of endosulfan during its phase-out over the next few years, leading to the exhaustion of endosulfan stocks by December 31, 2016.

These changes will be communicated on revised product labels. Labels of registered pesticide products have specific instructions for use including measures to protect human and environmental health. These directions must be followed by law. The interim risk mitigation measures that were required in 2009 (REV2009-09) will be integrated with more protective instructions on some crops, to mitigate risks posed by use that may continue until 2016.

Appendix I lists requirements for label amendments including the last dates of permitted use on each crop and new mitigation measures to protect human health:

- Additional protective equipment and precautions to protect mixers/loaders/applicators.
- Longer restricted-entry interval to protect those entering treated sites.
- Reduced numbers of applications/season and limits to the amount handled/person/day.
- Prohibition from allowing livestock to graze or feed on treated crops or crop refuse.

Requirements for label amendments specified in REV2009-09 remain unless they are covered by the new mitigation measures outlined in Appendix I. In particular, advisory statements and Directions For Use will be revised as specified in REV2009-09 regarding:

- maximum rates of application per hectare and maximum application/ha/season;
- advisory statements regarding environmental hazard; and
- instructions to reduce spray drift, runoff and potential surface water contamination.

3. Implementation of the Phase-out

Registrants and the PMRA plan to complete label amendments during the winter of 2010-2011, so that existing stock of the wettable powder (WP) formulation may be overstickered with the phase-out label that includes a table of last dates of use. New production of Thionex EC (emulsifiable concentrate) and Thionex 50WP-WSP (in water-soluble bags) will bear the phase-out labels when it is distributed for sale to users. No Thionex WP may be imported unless it is packaged in water-soluble bags.

After December 31, 2011, endosulfan pesticide may only be sold if the label includes last dates of use and other restrictions to the use pattern that are required for the duration of the phase-out period. It is expected that stocks of Thionex 50WP will have been exhausted through sale and use by mid 2012 and will have been replaced on the market by Thionex 50WP-WSP.

Registrants will cease production and sale of endosulfan pesticide products by December 31, 2014. Sale of endosulfan pesticide products by others is not permitted after December 31, 2015. Use of endosulfan products is not permitted after December 31, 2016.

Appendix I Packaging and Label Amendments for Products Containing Endosulfan

Canadian end-use product labels are to be amended to include the following risk mitigation measures, in addition to those that were required by REV2009-09.

1. A **Note to User** box on primary panel showing the last permitted date of use for each crop/site:

NOTE TO USER	
Last date of use is December 31, 2010 on the following crops:	All product formulations: alfalfa, clover, field corn, sunflower, spinach, succulent beans, succulent peas; WP product formulation: above crops *and* field tomatoes, sweet corn, dry beans and dry peas.
Last date of use is December 31, 2012 on the following crops/sites:	apple, bean (dry), broccoli, Brussels sprouts, cabbage, cauliflower, corn (sweet), grape, pea (dry), pear, rutabaga, turnip, greenhouse cucumber, greenhouse tomato, bait station outside food processing plants.
Last date of use is December 31, 2016 on the following crops:	apricot, celery, cherry, cucumber, eggplant, lettuce (head), melon, ornamentals (outdoors), ornamentals (greenhouse), peach, pepper, plum, potato, pumpkin, squash, strawberry, sugar beet, tomato.
It is unlawful to use this product on any crop or site after December 31, 2016. This product is not to be used in and around homes or other residential areas such as parks, school grounds and playing fields. It is not for use by homeowners or other uncertified users.	

2. Existing stock of the wettable powder formulation will be overstickered. Moving forward, wettable powder formulation is to be packaged in water soluble bags. Instructions for safe handling of water soluble bags are to be included and should be proposed by the registrant.

3. Additional PRECAUTION STATEMENTS for the protection of human health:

> "Keep the following personal protective equipment immediately available for use in case of emergency (i.e. a broken package, spill or equipment breakdown): chemical-resistant coveralls, chemical-resistant gloves, chemical-resistant headgear and a NIOSH-approved respirator."

"Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings."

"Do not make silage from treated crop or feed crop refuse to livestock or allow them to graze on treated sites."

4. Directions (as appropriate, for the EC, WP-WSB and WP label formulations) to applicators regarding Engineering Control and Personal Protective Equipment:

A. Mixing and Loading Liquids

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks during mixing/loading, clean-up and repair.

Mixers and loaders must use a closed pump transfer system to enclose the product to prevent it from contacting handlers or other people. The system must be capable of removing the product from the shipping container and transferring it into mixing tanks and/or application equipment.

B. Mixing and Loading Wettable Powder

Wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and chemical resistant footwear and a NIOSH-approved respirator during mixing/loading, clean-up and repair.

C. Mixing and Loading Wettable Powder in Water Soluble Bags

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks.

D. Application using handheld equipment

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks.

For EC (400 g a.i./L): do not handle more than 0.675 L of product in a day per person. (At the rate of 1.5 L product/1000 L water, this allows an applicator to apply approximately 450 L spray mixture per day.) Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators.

For WP and WP-WSB (50% a.i.): do not handle more than 0.54 kg of product in a day per person. (At the rate of 1.2 kg product/1000 L water, this allows an applicator to apply approximately 450 L spray mixture per day.) Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators.

E. Application using airblast equipment

Applicators using airblast equipment must either:
(i) use a closed cab that provides both a physical barrier and respiratory protection (i.e. dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Wear coveralls over a long-sleeved shirt, long pants, shoes plus socks. Have chemical resistant gloves ready for leaving the cab during calibration, repair or cleaning of equipment, or

(ii) use an open cab and wear chemical resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant shoes plus socks, chemical resistant gloves, chemical-resistant headgear, and a NIOSH approved respirator. Chemical resistant headgear includes So'Westers, or large brimmed, waterproof hats, and hoods with sufficient neck protection. Avoid touching face or other unprotected parts of the body during application.

WP and WP-WSB(50% a.i.): For apricot, peach, cherry and plum: do not handle more than 32 kg of product in a day per person (At the rate of 4.5 kg/ha, this allows for treatment of approximately 7 ha/day.) Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators.

F. Application using groundboom equipment

Use a closed cab that provides both a physical barrier and respiratory protection (i.e dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Wear coveralls over long-sleeved shirt and long pants, and shoes plus socks. Have chemical resistant gloves ready for leaving the cab during calibration, repair or cleaning of equipment.

EC (400 g a.i./L): For potatoes, do not handle more than 200 L product in a day per person. (At the rate of 2 L product/ha, this allows for treatment of approximately 100 ha/day.) Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators. For use every other year only.

WP and WP-WSB (50% a.i.): For potatoes, do not handle more than 174 kg product in a day per person. (At the rate of 1.75 kg product/ha, this allows for treatment of approximately 100 ha/day.) Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators. For use every other year only.

5. Under DIRECTIONS FOR USE, for each crop on the label, include the following instructions regarding the maximum number of applications, minimum application interval, restricted-entry interval (REI), and pre-harvest interval (PHI) for endosulfan.

Label REIs, PHIs, Maximum Number of Applicators and Minimum Spray Interval for Endosulfan

Crop	Activity	Restricted Entry Interval	Pre-Harvest Interval	Maximum Number of Applications
Emulsifiable Concentrate Product				
Celery,	All activities	4 days	14 days	1 application
Lettuce (head)	All activities	4 days	14 days	2 applications; minimum 7 day interval
Cucumber, melon,	All activities	4 days	9 days	3 applications; minimum 7 day interval
Pumpkin, squash	All activities	7 days	9 days	3 applications; minimum 7 day interval
Eggplant, pepper, tomato	All activities	4 days	27 days	2 applications; minimum 7 day interval
Strawberry	Scouting, hand weeding, irrigation, mulching	4 days	7 days	2 applications; minimum 7 day interval
	Other activities	7 days		
Potatoes	All activities	5 days	5 days[1]	4 applications/season; minimum 7 day interval. For use every other year only.
Sugar beet	Irrigation, scouting	10 days	45 days	1 application
	Other activities	2 days		

Crop	Activity	Restricted Entry Interval	Pre-Harvest Interval	Maximum Number of Applications
Ornamentals (potted, cut flower)	All activities	2 days	N/A	2 applications, minimum 7 day interval
Ornamental trees (including Christmas trees)	Handline irrigation	3 days	N/A	2 applications, minimum 7 day interval
	Other activities	2 days		
Greenhouse ornamentals	All activities	2 days	N/A	1 application per crop cycle
Greenhouse cucumber, tomato	All activities	2 days	2 days	1 application per crop cycle
Bean (dry only)	All activities	2 days	2 days	2 applications, minimum 7 day interval
Broccoli, Brussels sprouts, cabbage, cauliflower	All activities	4 days	7 days	2 applications, minimum 7 day interval
Corn (sweet)	Hand detasseling	17 days	50 days	1 application
	Other activities	10 days		
Peas (canning, seed)	All activities	2 days	7 days	2 applications, minimum 7 day interval
Rutabaga, turnip	All activities	2 days	45 days	2 applications, minimum 7 day interval
Wettable Powder (WP and WP-WSP) Product				
Apricot, peach, cherry, plum	Thinning	20 days	18 days	1 application by airblast, 3 applications by handheld equipment
	Other activities	7 days		
Celery	All activities	4 days	17 days	1 application
Lettuce	All activities	4 days	17 days	2 applications; minimum 7 day interval
Cucumber, melon,	All activities	4 days	13 days	2 applications; minimum 7 day interval
Pumpkin, squash	Hand weeding, pruning, hand thinning	12 days	13 days	2 applications; minimum 7 day interval
	Other activities	10 days		
Eggplant, pepper	All activities	9 days	27 days	2 applications; minimum 7 day interval
Strawberry	Scouting, hand weeding, irrigation, mulching	7 days	12 days	2 applications; minimum 7 day interval
	Other activities	12 days		

Crop	Activity	Restricted Entry Interval	Pre-Harvest Interval	Maximum Number of Applications
Potatoes	All activities	5 days	5 days[1]	2 applications/season; minimum 7 day interval. For use every other year only.
Ornamentals (potted, cut flower)	All activities	4 days	N/A	2 applications, minimum 7 day interval
Ornamental trees (including Christmas trees)	Handline irrigation	17 days	N/A	2 applications, minimum 7 day interval
	Other activities	4 days		
Greenhouse ornamentals	All activities	2 days	N/A	1 application per crop cycle
Greenhouse cucumber, tomato	All activities	2 days	2 days	1 application per crop cycle
Broccoli, brussel sprouts, cabbage, cauliflower	All activities	9 days	9 days	2 applications, minimum 7 day interval
Grape	All activities	2 days	30 days	2 applications, minimum 7 day interval
Apple, pear	All activities	4 days	15 days	2 applications, minimum 7 day interval

[1] Where the REI is longer than existing pre-harvest interval (PHI), the PHI is increased to match the REI.